Ann. Natal Mus. Vol. 22(3) Pages 747–753 Pietermaritzburg November, 1976

A synopsis of the genus Ochromusca Malloch, 1927 (Diptera: Muscidae)

by

A. C. Pont and J. P. Dear

(Department of Entomology, British Museum (Natural History), London)

SYNOPSIS

A review is presented of the genus *Ochromusca* Malloch, 1927. The systematic position and biology of the genus are briefly summarized, and a new species *O. secunda* is described from Uganda and Sudan. Lectotypes are designated for *Phumosia trifaria* Bigot, 1878, and *Pseudobengalia auchmeromyiina* Enderlein, 1935; and *Athiplanomyia mydaea* Séguy, 1937, is a new junior synonym of *Phumosia trifaria* Bigot, 1878.

INTRODUCTION

The genus *Ochromusca* has until now been thought to contain only one species, *trifaria* Bigot, which is widely distributed throughout the Afrotropical region and which is known to pass its immature stages in dead snails of the family Achatinidae. Whilst identifying a number of Afrotropical Muscidae in the collection of the British Museum (Natural History), a second species was discovered which appears to be confined to Kenya, Uganda and southern Sudan, and it is the main purpose of this paper to describe this species.

Genus *Ochromusca* Malloch

Ochromusca Malloch, 1927: 385. Type-species: *Ochromusca setigera* Malloch, 1927 [=*Phumosia trifaria* Bigot, 1878], by original designation.

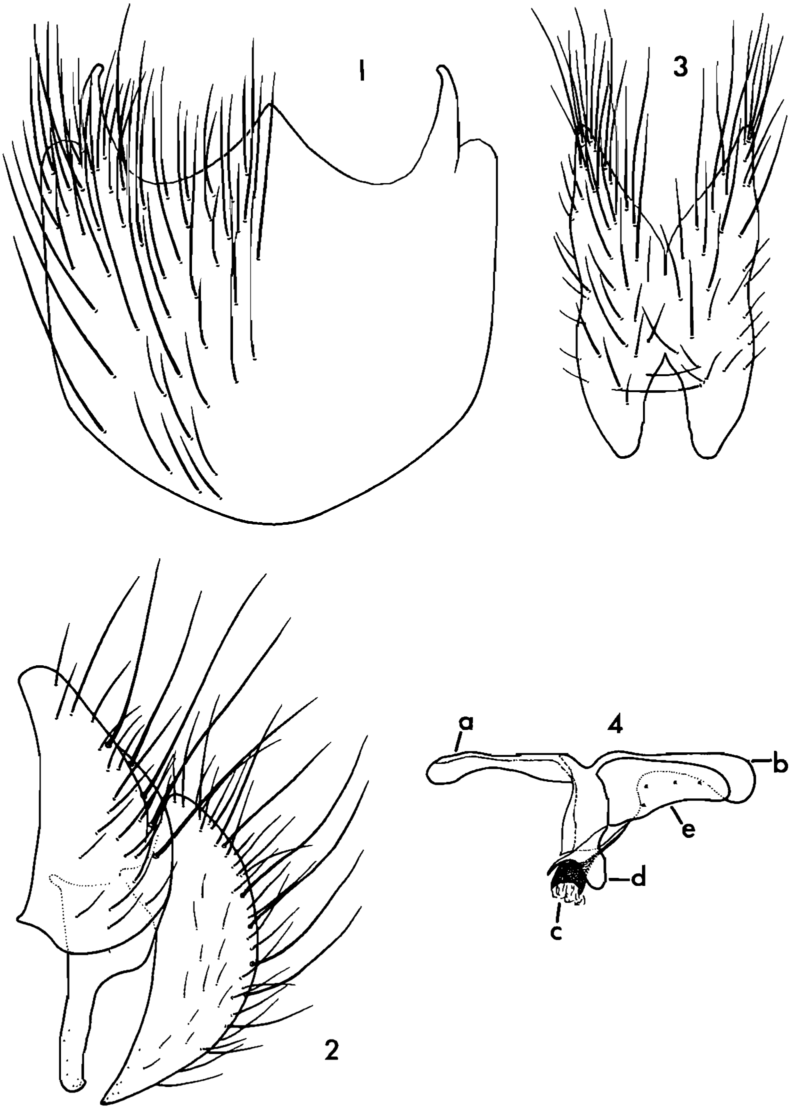
Pseudobengalia Enderlein, 1935: 239. Type-species: *Pseudobengalia auchmeromyiina* Enderlein, 1935 [=*Phumosia trifaria* Bigot, 1878], by original designation.

Athiplanomyia Séguy, 1937: 375. Type-species: *Athiplanomyia mydaea* Séguy, 1937 [=*Phumosia trifaria* Bigot, 1878], by original designation.

Diagnosis: Ochromusca may be distinguished from other genera of the Muscidae by the almost entirely yellow body-colour, setulose pteropleuron, broadly truncated lower squama, bare propleural depression, setulose supra-spiracular convexity, and metathoracic spiracle without marginal setulae.

Ochromusca is extremely closely related to the genera *Alluaudinella* Giglio-Tos and *Aethiopomyia* Malloch. All three contain rather large, robust, mainly yellow species, and all three pass their immature stages in dead or dying snails. They may be identified using the keys to subfamilies and genera given by Emden (1939, 1941). Keys to the species of *Alluaudinella* have been given by Paterson (1959) and to *Aethiopomyia* by Zumpt (1969).

Ochromusca was placed by Emden (1939) in the Muscinae on account of the enlarged *Musca*-like lower squama, but Paterson (1956, 1959) transferred it to the Phaoniinae on the basis of both larval and adult characters. Hennig (1965) has pointed out the relationship of the *Ochromusca*-group with *Dichaetomyia* Malloch, and all four genera have been included in the tribe Dichaetomyiini of the Phaoniinae in the forthcoming catalogue of the Muscidae of the Afrotropical region (Pont, in



Figs 1–4. *Ochromusca secunda* sp. nov., male paratype from Mt. Elgon. 1.—5th sternite. 2.—Hypopygium, lateral view. 3.—Cercal plate. 4.—Aedeagus. a—phallapodeme, b—epiphallus, c—distiphallus, d—praegonite, e—postgonite.

Crosskey *et al.*, in prep.). The aedeagus of *Ochromusca* (fig. 4) is of the extremely simple unmodified form characteristic of the Phaoniinae. The ovipositor resembles that of some *Dichaetomyia*, and is identical with that of *Alluaudinella lativentris* Stein illustrated by Hennig (1965: fig. 35). It is very short, not twice as long as the length of tergite 5. There are 3 spermathecae, and the uterine eggs are of the type illustrated by Paterson (1959: fig. 1) for *Alluaudinella.*

Key to the species of *Ochromusca* Malloch

1. Notopleuron with pale setulae around the posterior seta. ♂: frons broader, at middle $\frac{2}{3}$ of an eye-width at this point; cross-vein r-m only weakly clouded; mesonotum with the median dark vitta less conspicuous; mid femur with long fine *pv* setae in basal half, much longer than femoral depth; hind femur with a row of long fine sparse *av* setae in basal half, longer than femoral depth, and opposite them on *pv* surface with dense multiserial setulae; mid and hind tibiae with at least a few fine *pv* setae, often with several dense rows on apical third **trifaria** Bigot

Notopleuron with dark setulae around the posterior seta. ♂: frons narrower, at middle only just over half of an eye-width at this point; cross-vein r-m strongly clouded; mesonotum with the median dark vittae more conspicuous; mid femur with only 3–4 shorter stout *pv* setae; hind femur with a few short weak *av* setae on basal half, and much shorter and less dense setulae on *pv* surface; mid and hind tibiae without *pv* setae.................................**secunda** sp. n.

Ochromusca trifaria Bigot

Phamosia [sic] *trifaria* Bigot, 1875: lxxv. Nomen nudum.
Phumosia trifaria Bigot, 1878: 32. Lectotype ♂, NATAL. In the Hope Department of Entomology, Oxford [see designation below].
[*Ochromyia luteola* (Fabricius, 1805); Karsch, 1886: 202. Misidentification.]
Ochromusca setigera Malloch, 1927: 386. Holotype ♂, ZULULAND: Mgwavuma [see notes below]. Synonymy by Emden (1951: 701).
Pseudobengalia auchmeromyiina Enderlein, 1935: 239. Lectotype ♂, ANGOLA: Pungo Andongo. In the Museum für Naturkunde der Humboldt-Universität, Berlin [see designation below]. Synonymy by Emden (1951: 701).
Athiplanomyia mydaea Séguy, 1937: 375. Holotype ♂, KENYA: Mombasa, Athi-plain. In the Muséum National d'Histoire Naturelle, Paris [see notes below]. Synonymy with *setigera* Malloch by Emden (1939: 53). **Syn. n.**

Lectotype designation for trifaria *Bigot.* Bigot described his species from an unspecified number of females from Natal. His original material was seen by Brauer (1899: 520, no. 140) who did not however give any details as to sex or number.

In that part of the Bigot collection now in the Hope Department of Entomology, Oxford, there are 1 ♂ and 2 ♀ under the label *trifaria*, which we regard as Bigot's original syntypes. As the male has a broad frons in this species, it is not surprising that Bigot made a mistake in sexing his specimens and described them all as females. The specimens are without data, but the male has Villeneuve's determination label 'Mydaea ead. nom.'. Bigot's hand-written drawer label reads 'P.[humosia] Trifaria. ♀./Natal. J. Bigot'.

We designate herewith, and have labelled accordingly, the male as lectotype and the two females as paralectotypes. The male is in good condition. All three specimens are conspecific.

Note on the types of setigera *Malloch.* The holotype ♂, allotype ♀ and paratype ♀ are in the British Museum (Natural History), London. The full holotype data, correctly cited by Malloch, is Zululand, Mgwavuma, Mch. 17, E. W. Baxter. The location of Malloch's 2 ♂ paratypes is not known. These three specimens are conspecific and belong to *trifaria* as defined in the key above.

Lectotype designation for auchmeromyiina *Enderlein.* Enderlein described this species from eight specimens which he listed fully in his paper, but he did not list a holotype. All eight syntypes are in the Museum für Naturkunde der Humboldt-Universität, Berlin, and have been lent to us for study.

All eight syntypes have been labelled by Enderlein as 'type ♂', 'type ♀' and 'cotypes', and we have noted a number of discrepancies between Enderlein's published list of syntypes and the syntypes themselves:

The '♂ and ♀' from Bibundi, 9 Oct. 1904, are labelled as 'type ♂' and 'type ♀' by Enderlein. In fact, both specimens are males.

The other two specimens from Bibundi, 4 Sept. 1904, ♂, and 2 Oct. 1904, ♀, are correctly sexed.

The '2 ♂' from Pungo Andongo are labelled by Enderlein as females, but are in fact males.

The ♀ from Bismarckburg has the date 21–22 April 1893.

The '♀' from Delagoabai is in fact a male.

As the Pungo Andongo males are in best condition we have labelled one of them, and designate it herewith, as lectotype. The remaining syntypes, 5 ♂ and 2 ♀, have been labelled as paralectotypes.

The data on the lectotype is Pungo Andongo, V. Homeyer, and it is also labelled 'Ochromyia luteola (F.)', probably by Karsch (1886: 262).

All eight specimens are conspecific and belong to *trifaria* as defined in the key above.

Note on the types of mydaea *Séguy*. The holotype ♂ has the data Afrique Orient. Angl., Mombasa, Athi-plain, Dr. Fernique 1900. Also in the Muséum National d'Histoire Naturelle, Paris, there are 2 ♂ paratypes from Fernando Po (L. Conradt), but the cotype from Bassoutos régio has not been located. These three specimens are conspecific with *trifaria* as defined in the key above.

Biology. The larvae were first reported as being parasitic on living snails of *Achatina craveni* Smith and as pupating inside the shell (Emden 1949). Subsequent reports have all stated that larvae feed on the dead snails (Emden 1956; Paterson 1958; Disney 1970, 1973). Mouth-parts, posterior spiracles and anal plate of the 3rd instar larva have been illustrated by Paterson (1958: fig. 3).

Distribution. O. trifaria is widely distributed throughout mainland Africa from Kenya to South Africa to Sierra Leone. The following records are known to us, based on material in the British Museum (Natural History) and on published records.

ANGOLA: Pungo Andongo (Enderlein 1935, type-locality of *auchmeromyiina*); Bruco. CAMEROUN: Bibundi (Enderlein 1935); Kumba (Disney 1970, 1973); Victoria. FERNANDO PO: (Séguy 1937). GHANA: Accra; Kumasi; Jimle; Takoradi. KENYA: Mombasa, Athi plain (Séguy 1937, type-locality of *mydaea*). MALAWI: (Emden 1939); Fort Johnston (Emden 1949); Blantyre; Chikraja; Mlanje; Ruo; Zomba. MOZAMBIQUE: Delagoa Bay (Enderlein 1935); Lourenço Marques (Emden 1939). NIGERIA: Asaba; Ile-Ife. RHODESIA: Vumba Mts (Cuthbertson 1934, 1938); Rhodes Inyanga Estate Hotel (Cuthbertson 1934); Umtali. RWANDA: Kayove (Emden 1956). SIERRA LEONE (Emden 1956). SOUTH AFRICA: Natal (Bigot 1878, type-locality of *trifaria*); Zululand, Mgwavuma (Malloch 1927, type-locality of *setigera*); 'Bassoutos régio' [Lesotho] (Séguy 1937); Ndumu Game Reserve (Paterson 1958); Eshowe. SUDAN: Kaalib Hills. TAN-

ZANIA: Kilossa (Emden 1939); Msingi (Paterson 1956); Mpwapwa; Old Shinyanga. TOGO: Bismarckburg (Enderlein 1935). UGANDA: Toro, Nyakasura (Emden 1939); Balemwezi; Buzi River; Mulago. ZAÏRE: (Emden 1956); Eala; Kabinda; Sankuru.

Material mentioned by Emden (1939: 53–54) from Kenya (Mt. Elgon) and Uganda (C. C. Gowdey), and some of that from the Sudan (1956: 510), belongs to *secunda*, sp. n.

Ochromusca secunda sp. nov.

♂ *Head:* Ground-colour yellow, only the occiput dark. Frons broad, at middle equal to just over half an eye-width at this point. Eyes virtually bare, with only the usual microscopic pubescence; facets of uniform width. Ocellar setae very strong; *vti*, *vte* and *pvt* short. Post-ocular setulae confined to one row on upper half of eye. Parafrontalia, parafacialia, face and genae densely silvery-yellow pruinose, occiput silvery-white; interfrontalia orange. Parafrontalia quite broad, at middle of frons a parafrontale just over half width of interfrontalia. Interfrontalia with straight margins, evenly dilating from vertex to lunula. 3–6 pairs of inclinate *ori*, with few interstitials; 2 strong reclinate *ors*; parafrontalia otherwise with a few short setulae; interfrontalia bare. Antennae orange-yellow; 3rd segment weakly infumated towards tip, 4 times as long as broad. Arista plumose, the longest combined plumosity equal to just under length of 3rd antennal segment. Parafacialia quite broad, at middle almost equal to width of 3rd antennal segment. Facial ridges bare above the usual cluster of setulae above vibrissae. Genae moderate, the depth below lowest eye-margin slightly exceeding width of 3rd antennal segment. Peristomal setae black, with some pale setulae amongst them; beard almost entirely black. Mentum of proboscis light brown, dusted. Palpi yellow, flattened.

Thorax: Ground-colour orange-yellow, mesonotum and scutellum browner, mesonotum with a black central vitta from neck to scutellum occupying about half the space between the *dc* rows. Viewed from above and behind, mesonotum white dusted before suture but more cinereous dusted after suture, leaving undusted markings as follows: a pair of paramedian vittae, narrowly interrupted at suture by dust, from neck almost to 2nd *post dc*; a pair of *prst* patches between *dc* and *ph*; and a pair of *post* vittae between *dc* and *ia*. Pleura with a little whitish dust; spiracles creamy. Scutellum with a little cinereous dust in posterior view. Ground-setulae dark on mesonotum and scutellum, pale on pleura except for most of those on mesonotum. *Acr* 0+1, the *prst* setulae continuous between *dc*. *Dc* 2+3 (2+4 in one specimen). 3 *h*, 2 *ph*, 2 *ia*, 2 *sa*, 2 *pa*. *Pra* half length of 2nd *npl*. Post-alar declivity and suprasquamal ridge bare. Prosternum setulose. Propleural depression bare. Auxiliary prostigmatal weak. Notopleuron with the setulae around 2nd seta dark. Mesopleuron with 2 setulae in upper anterior corner. Pteropleuron setulose on almost whole of disc, including sub-alar ridge; infra-alar bulla bare. *Stpl* 1+2, anterior one shorter than posterior one. Hypopleuron with yellow hairs below spiracle, continuing on to upper part of beret, and on metepisternum. Metathoracic spiracle bare on margins. Supra-spiracular convexity with pale hairs. Squamopleuron bare. Scutellum with 4–5 pairs of setae: apical, sometimes subapical discal, lateral, sub-basal lateral and basal; disc entirely setulose, and 2–3 rows of setulae descending below the level of the strong setae on basal half.

Legs: Yellow. Tarsi with pulvilli and claws very large. Fore femur without *av* setae, with a complete *pv* row. Fore tibia without a *p* seta, with 3–4 short *ad* in apical half. Mid femur with a few short *av* setae in basal quarter; *pv* surface with 3–4 strong setae on basal third, and with a comb of short strong spinules on almost apical half; 0 *a* and 2 *p* preapical setae. Mid tibia without long ventral hairs or *ad* setae; 2–3 *p* setae. Hind femur with a row of *av* setae, fine in basal half, stout before apex; *pv* surface with several setae placed pluriserially on basal third, giving rise to a row of short strong setae that continues almost to apex. Hind tibia with 3–4 short *pd*, the *ad* setulae rather erect with 4–5 setae in the row, 2–3 *av*, 0 *pv*; *d* and *ad* apicals present, without *pv* apical.

Wings: Rather smoky on apical ⅗ with cross-vein r-m rather intensely clouded. Basicosta and epaulet orange-yellow. Veins bare except for costa and basal part of r4+5. Cross-vein m-m weakly sinuate. Vein M1 strongly curved forward towards r4+5, the bend rounded, cell R5 at wing-tip hardly longer than r-m. Squamae dirty yellow, upper one with a partly brown margin; lower one of the *Musca*-type. Halteres orange-yellow.

Abdomen: Orange-yellow, with a variable amount of darkening: at least a dark median vitta on tergites 3–5, part of tergite 4 and most of tergite 5 dark. In posterior view, tergites 4 and 5 brownish-cinereous dusted with dark brown dots at the bases of the setae and setulae. Sternites yellow. Tergite 4 with a row of stout marginal setae, tergite 5 with a row of stout discal and marginal setae. Sternite 1 with yellow setulae. Sternites 2–4 with strong but not spiky setae. Sternite 5 as in fig. 1.

Hypopygium: As in figs 2–4. Indistinguishable from that of *trifaria*.

Measurements: Length of body, 11.5–12.0 mm. Length of wing, 11.0–11.5 mm.

♀ not known.

Holotype ♂, KENYA: Mt. Elgon, Kapretwa, 6 500 feet, Feb. 1935 (F. W. Edwards), in the British Museum (Natural History), London. *Paratypes*, 4 ♂, all in the British Museum (Natural History), London. KENYA: data as for holotype, 1 ♂. UGANDA: Bulemwezi, 18 July 1915 (E. Hutchins), 1 ♂; no locality, 1918 (C. C. Gowdey), 1 ♂. SUDAN: Misheen-Bundle, densely wooded khor, 18 March 1911 (H. H. King), 1 ♂.

The holotype and two of the paratypes (collected by Edwards and Gowdey) were recorded by Emden (1939: 53) as *setigera* Malloch; and the Sudanese paratype is one of the specimens on which Emden (1956: 510) based his record of *trifaria* from Sudan.

The locality Misheen (probably an error for Miskeen) is situated in South Sudan, very close to the border with Zaïre (see King 1912).

ACKNOWLEDGEMENTS

For the loan of type-material we are very grateful to M. Loïc Matile (Muséum National d'Histoire Naturelle, Paris); Dr H. Schumann (Museum für Naturkunde der Humboldt-Universität, Berlin); and Professor G. C. Varley and Mr E. Taylor (Hope Department of Entomology, Oxford). We are also grateful to Dr D. J. Lewis (British Museum (Natural History), London) for his help with Sudanese localities.

REFERENCES

BEZZI, M., 1908. Ditteri Eritrei raccolti dal Dott. ANDREINI e dal Prof. TELLINI. Parte Seconda. Diptera Cyclorrhapha. *Boll. Soc. ent. ital.*, **39**: 3–199.

BIGOT, J.-M.-F., 1875. [Notice of a forthcoming paper, in Séance of 14 April 1875.] *Annls Soc. ent. Fr.* (5), **5**: lxxv.

——— 1878. Diptères nouveaux ou peu connus. 9^{e} partie. XII. Genus Phumosia, Pyrellia, Cosmina, Ochromyia et Curtonevra. XIII. Genres OCYPTERA (Latr.), Ocypterula, Exogaster (Rond.). XIV. Notes et mélanges. *Annls Soc. ent. Fr.* (5), **8**: 31–48.

BRAUER, F., 1899. Beiträge zur Kenntniss der Muscaria schizometopa. Bemerkungen zu den Originalexemplaren der von Bigot, Macquart und Robineau-Desvoidy beschriebenen Muscaria schizometopa aus der Sammlung des Herrn G. H. Verrall. Dritte Folge. *Sber. Akad. Wiss. Wien*, **108**, Abt. 1: 495–529.

CROSSKEY, R. W., *et al.*, In prep. *A Catalogue of the Diptera of the Afrotropical Region.* London.

CUTHBERTSON, A., 1934. Biological Notes on some Diptera in Southern Rhodesia. *Proc. Trans. Rhod. scient. Ass.*, **33**: 32–50.

——— 1938. Biological Notes on Some Diptera in Southern Rhodesia. *Proc. Trans. Rhod. scient. Ass.*, **36**: 115–130, plates 1–2.

DISNEY, R. H. L., 1970. A note on *Discomyza similis* Lamb (Dipt., Ephydridae) and other flies reared from dead snails in Cameroon. *Entomologist's mon. Mag.*, **105**: 250–251.

——— 1973. A note on some filth-inhabiting flies of Cameroon. *Entomologist's mon. Mag.*, **108**: 212–213, 1 table.

EMDEN, F. I. VAN., 1939. Muscidae: A.—Muscinae and Stomoxydinae. *Ruwenzori Expedition 1934–5*, **2** (3): 49–89, 8 figs. London.

——— Keys to the Muscidae of the Ethiopian Region: Scatophaginae, Anthomyiinae, Lispinae, Fanniinae. *Bull. ent. Res.*, **32** (3): 251–275.

——— 1949. [Exhibit of the Muscid fly *Ochromusca trifaria* Bigot at the meeting of 7 September 1949.] *Proc. R. ent. Soc. Lond.* (C), **14**: 31.

——— 1951. Muscidae: C.—Scatophaginae, Anthomyiinae, Lispinae, Fanniinae and Phaoniinae. *Ruwenzori Expedition 1934–5*, **2** (6): 325–710, 106 figs, 3 tables. London.

——— 1956. Contributions à l étude de la faune entomologique du Ruanda-Urundi (Mission P. BASILEWSKY 1953). CVIII. Diptera Muscidae. *Annls Mus. r. Congo Belge*, Sér. 8°, Sci. Zool., **51**: 506–531, 11 figs.

ENDERLEIN, G., 1935. Dipterologica. III. *Sber. Ges. naturf. Freunde Berl.*, **1935**: 235–246.

HENNIG, W., 1965. Vorarbeiten zu einem phylogenetischen System der Muscidae (Diptera: Cyclorrhapha). *Stuttg. Beitr, Naturk.*, **141**: 100 pp., 53 figs.

KARSCH, F., 1886. Dipteren von Pungo-Andongo, gesammelt von Herrn Major Alexander von Homeyer. [Part.] *Ent. Nachr.*, **12** (17): 257–264, figs 2–3.

KING, H. H., 1912. Observations on the occurrence of *Glossina* in the Mongalla Province of the Anglo-Egyptian Sudan. *Bull. ent. Res.*, **3** (1): 89–93, 1 map.

MALLOCH, J. R., 1927. Exotic *Muscaridae* (Diptera).—XX. *Ann. Mag. nat. Hist.* (9), **20**: 385–424.

PATERSON, H. E., 1956. East African *Muscidae* (Diptera). (Ergebnisse der Deutschen Zoologischen Ostafrika-Expedition 1951/1952, Gruppe Lindner, Stuttgart, Nr. 20.) *Beitr. Ent.*, **6** (1–2): 154–179, 10 figs.

——— 1958. A new *Pyrellia* species from Natal, together with miscellaneous notes on other Muscidae (Diptera). *J. ent. Soc. sth. Afr.*, **21** (2): 300–305, 4 figs.

——— 1959. Notes on the genus *Alluaudinella* G.-T. with the description of a new species and a key to the known species of the genus (Diptera: Muscidae). *Mém. Inst. scient. Madagascar*, Sér. E., **11**: 355–367, 11 figs.

SÉGUY, E., 1937. Diptera, Family Muscidae. *Genera Insect.*, **205**: 604 pp., 9 plates. Bruxelles.

ZUMPT., F., 1969. Notes on the genus *Aethiopomyia* Malloch (Diptera: Muscidae) with a new species from Tanzania. *J. ent. Soc. sth. Afr.*, **32** (1): 163–167, 3 figs.

Date received: 19 May 1975